
ENVIRONMENTAL Fact Sheet



29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

WMD-REM-26

2006

Transitioning from MtBE to Ethanol Guidance for Gasoline Storage Tank Owners

This document provides New Hampshire's aboveground and underground gasoline storage tank owners with basic information on preparing for the introduction of an ethanol-gasoline blended product to their tank systems. The primary areas of concern are ***product cleanliness, materials compatibility, and water control***. Failure to adequately address these three areas of concern could lead to tank system failure and/or customer dissatisfaction.

It is our understanding that many of the gasoline supply terminals in the Northeast will be transitioning from the oxygenate MtBE to an ethanol-blend gasoline during the spring of 2006. Some brands have already commenced the transition. Effective January 1, 2007, RSA 146-G:12 prohibits the sale, delivery for sale, and the importation of gasoline containing MtBE and other ether oxygenates in New Hampshire. To determine if and when an ethanol-blend gasoline will be delivered to your facility, please check with your supplier.

Product Cleanliness

The ethanol in an ethanol-blend gasoline acts as a solvent and may dissolve and/or loosen materials such as bottom sludge and some wall coatings on petroleum storage tanks. The loosened materials will be suspended in the gasoline and may cause pump filters and vehicle fuel lines to clog.

To prevent clogging from occurring, tank owners should conduct the following **two steps prior to receiving the first shipment** of an ethanol-blend gasoline:

- Empty and thoroughly clean the storage tank. If this cannot be done, vacuum as much sludge and debris off the bottom of the tank as possible, using an external pump.
- Install pump filters suitable for removing an expected increase in particulate matter. Contact your product supplier to determine the correct type of filter to use. These special pump filters will have to be changed frequently during the first few months of an ethanol-blend use. If the special pump filters are not used, retail customers may experience clogged automobile fuel line filters and lodge complaints with your station.

Materials Compatibility

Petroleum storage tank systems designed and installed after 1981 should not experience a compatibility issue due to the introduction of an ethanol-blend gasoline. For those systems installed prior to 1981, the manufacturer should be contacted to determine compatibility.

Many materials, such as zinc-galvanized metals, Buna-N seals, neoprene seals, urethane rubber elastomers, polyurethane, and alcohol-based pipe dope polymers may not be compatible with the use of an ethanol-blend gasoline. Tank owners should perform the following **three steps prior to receiving the first shipment** of an ethanol-blend gasoline:

- Check with your tank, pump, and piping manufacturers to determine if the material of manufacture is compatible with an ethanol-blend gasoline.
- If your tank has been lined, check with the lining company to determine if the lining material and/or adhesive is compatible with an ethanol-blend gasoline.
- If the interior of your tank has been repaired, check to make sure the area of repair will not deteriorate upon the introduction of an ethanol-blend gasoline.

Water Control

Control of water in the tank system is essential with an ethanol-blend gasoline due to ethanol's affinity for water. An excess of water in the tank may cause the ethanol to partition itself out of the gasoline and into the water. The water level in the tank must be checked prior to the introduction of an ethanol-blend gasoline and frequently thereafter. If water is present in the tank, it should be removed prior to the introduction of an ethanol-blend gasoline. Further, it must be determined how the water entered the system. If the investigation indicates water intrusion is a problem, the cause of the intrusion must be eliminated prior to the introduction of an ethanol-blend gasoline.

To measure water in an ethanol-blend gasoline a special water-finding paste applied to the gauging stick is required. Ask your supplier for a paste designed to detect water in ethanol-blend gasoline. Check the directions to determine what each resulting color means, i.e., is water present or has phase separation occurred.

Install alcohol sorbing filters on the dispensers. These water sensitive filters will attempt to absorb water that is present. If the filter's capacity is exceeded, the filter will slow the flow of gasoline to a very low rate or stop it entirely. The filter will then have to be changed.

Additional information relating to the introduction of ethanol-blend gasoline can be found on our website at http://www.des.nh.gov/orcb/ustprog_info.htm.

Disclaimer: This guidance document is intended to provide the gasoline storage tank facility owner with basic information to prepare for the introduction of an ethanol-blend gasoline. The facility owner is encouraged to contact their distributor for more specific instructions. The New Hampshire Department of Environmental Services does not assume any liability for failure or damage to any gasoline storage tank system associated with the preparation to receive an ethanol-blend gasoline, and encourages the facility owner to consult with his/her distributor for the proper instructions. 2-28-06